Qazvin University of Medical Sciences

Faculty of Health

A Thesis

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Title

Investigation of *Staphylococcus aureus* coagulase positive in traditional and device ice cream samples in Qazvin during different seasons in 1396-97

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Introduction and Aim: Bacteria are the most important cause of foodborne infections and poisoning. Ice cream is one of the most popular and popular treats for children and adults in the summer and consumes more in children and, if contaminated, can spread the disease to a vulnerable group of people. Due to its nutrient environment, pH of 6 to 7 and long shelf life, this product can be very beneficial for the growth of microorganisms. Staphylococcus aureus is one of the important bacteria in food hygiene and human and animal diseases. The aim of this study was to determine the prevalence of Staphylococcus aureus coagulase positive in traditional ice cream samples delivered in Qazvin during different seasons in 1396-97.

Materials and Methods: The present study was a descriptive cross-sectional study in which 100 samples of traditional ice cream and apparatus supplied in ice cream shops in Qazvin were examined for Staphylococcus aureus infection. Systematic random sampling was used By going to the selected centers, pour about 100 grams of ice cream in disposable containers and close the lid and mention all the specifications including (sample description, location, sampling date, etc.) for testing at the Health and Safety Laboratory. Food was transported to Qazvin University of Medical Sciences. At first, Staphylococcus aureus was identified by culture method and confirmed by complementary tests and then confirmed by a PCR technique. The results were analyzed using SPSS 23 software. In this study, binomial ratio and Fisher exact tests were used to investigate the variables.

Results: Based on the results of this study, 5% of 100 samples were positive for Staphylococcus aureus coagulase. All infected samples confirmed by PCR were also confirmed. Out of 5 contaminated samples, 4 cases (4%) were in summer and 1 case (1%) in autumn. According to Fisher's exact test, no significant relationship was found between season and bacterial contamination and different areas of Qazvin and bacterial contamination. Also, according to the test, the ratio of binoculars to ice cream (traditional or instrumental) has no significant effect on contamination.

Conclusion: In the present study, the prevalence of Staphylococcus aureus in traditional ice cream was 5%. Contamination was higher in ice cream (3%) than traditional ice cream (2%) and the highest contamination was observed in summer (4%). Pollution in Qazvin 2 and 3 was higher (2% each) than in Area 1 (1%). Lack of compliance with hygiene standards during the production process, the use of non-pasteurized milk, lack of attention to the process of applying sufficient heat to the primary ice cream blend is one of the causes of this increased contamination, as this bacterium may be contacted through the nose. And the mouth during ice cream preparation, so personal hygiene is important in preventing this infection. There may be more contamination in the summer due to the heat of the air, more use of ice cream, and lack of attention to hygiene and time spent on personal equipment and hygiene due to lack of time and sales. Also, contamination of the machine from which the ice cream is extracted also transmits contamination to the machine ice cream, so attention is paid to the health of the equipment.

Key words: Staphylococcus Aureus, Ice Cream, PCR, Qazvin, Food Poisoning